
11. Series

Program Name: Series.java

Input File: series.dat

Find the Nth term of the given series whose ith term is a_i . The series is of the form:

$$a_1 = A$$

$$a_n = B * C^n * a_{n-1}$$

Input

The first line is T, the number of series definitions that follow. Each series definition contains 4 integers A, B, C, N separated by a single space.

Output

For each test case, output the Nth term.

Example Input

```
3
3 5 -1 5
1 2 1 4
-2 2 -2 3
```

Constraints

Absolute values of A and B are ≤ 5 ; $-2 \leq C \leq 2$; $2 \leq M \leq 5$

Example Output

```
1875
8
256
```